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Fuel Focus

Understanding Gasoline Markets in Canada and Economic Drivers Influencing Prices

Volume 7, Issue 3

February 24, 2012

Canada

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National Overview

Canadian Retail Gasoline Prices Increase for the Second Straight Week

For the week ending February 21, 2012, Canadian average retail gasoline prices increased by 0.3 cent per litre from the previous week to $1.27 per litre. However, since the last report two weeks ago, retail pump prices rose by more than 4 cents per litre. Prices are above last year's level by 12 cents per litre.

Diesel fuel prices rose by 0.3 cent per litre from the previous week to $1.30 per litre, while furnace oil prices increased by 0.4 cent ending at $1.21 per litre. Compared to a year ago, prices for diesel and furnace oil are 12 and 17 cents per litre higher, respectively.

Average retail pump prices across Canada moved upward on higher wholesale gasoline prices, which in turn reflected the increase in world crude oil prices, particularly the North Sea Brent. The Middle East political stability remains fragile in oil producing countries, pushing crude oil futures price upward.

Recent Developments

- **Canadian and U.S. Oil Production to Increase 36% by 2016**: According to a report by Bentek Energy called *Crude Awakening: Shale Boom Hits Oil* total U.S. and Canadian crude oil production is projected to reach a record high in 2016 of more than 12 million barrels per day – outpacing U.S. demand growth – and overseas U.S. oil imports are projected to drop 41% by 2016 as they are pushed out by the new production. U.S. and Canadian crude oil production will grow 3.1 million barrels per day, or 36%, over the next five years. The result: downward pressure on U.S. oil prices such as West Texas Intermediate, and a continuation of deep discounts to international prices, which will prompt foreign suppliers to seek other international markets for their light crude. (Source: Global Refining and Fuels Report, February 7, 2012)
- **Canadian Crude Oil Production Up 2% in November 2011**: Production of crude oil and equivalent hydrocarbons increased 2% to 15.2 million cubic metres in November 2011 compared to the same month a year earlier. Exports increased 11% to 11 million cubic metres. About 73% of Canada's total domestic production went to the export market compared to 67% a year earlier. Imports fell 2% to 3.6 million cubic metres. (Statistics Canada, The Daily, http://www.statcan.ca/daily-quotidien/120210/dq120210b-eng.htm)
- **Increase in Domestic Gasoline Sales:** Motor gasoline sales increased 1% to 38 billion litres in the first ten months of 2011 compared to the same period in 2010. Diesel fuel sales rose nearly 7% to 25 billion litres, while light fuel oil (furnace oil) increased 7% to 2.8 billion litres in the same time period. (Source: NRCan and Statistics Canada)

Figure 1: Crude Oil and Regular Gasoline Price Comparison (National Average)

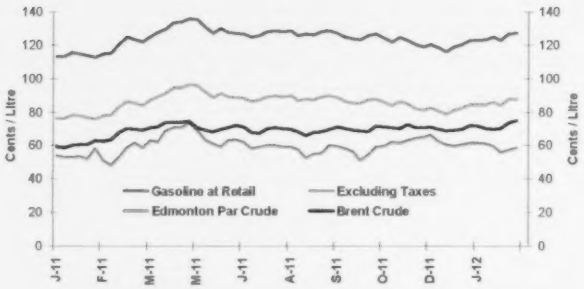
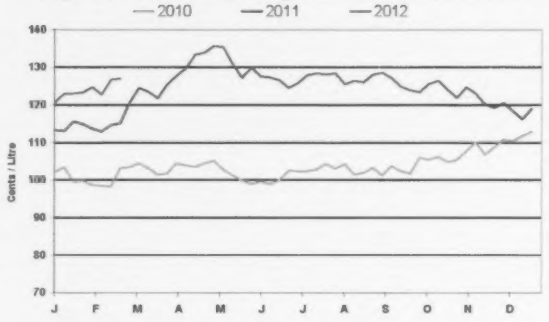


Figure 2: Weekly Regular Gasoline Prices



Changes in Fuel Prices

	Week of:	Change from:	
¢/L	2012-02-21	Previous Week	Last Year
Gasoline	127.0	+0.3	+11.8
Diesel	130.3	+0.3	+11.8
Furnace Oil	120.6	+0.4	+17.0

Source: NRCan

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Retail Gasoline Overview

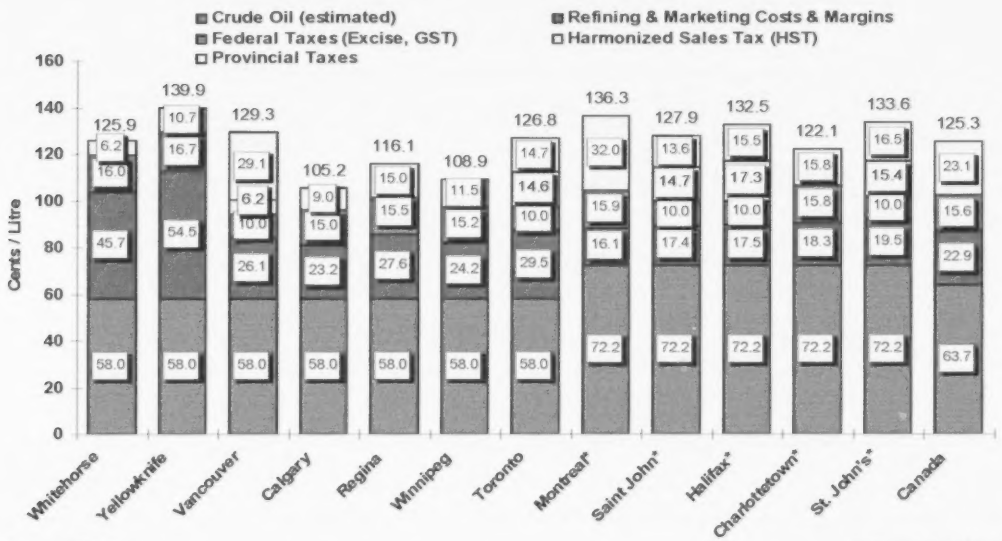
The **four-week average** regular gasoline pump price in selected cities across Canada was $1.25 per litre for the period ending **February 21, 2012**. This is 11 cents per litre higher than prices recorded at the same time last year.

The **four-week average** crude oil price component of gasoline registered at 64 cents per litre, down slightly by 0.3 cent per litre from two weeks ago. Compared to the same period in 2011, the crude oil price component of gasoline is 7 cents per litre higher.

Ranging from $1.05 per litre to $1.29 per litre, retail gasoline prices in most Western centres increased, on average, by 1 cent per litre when compared to two weeks ago. Prices in Eastern centres increased on average by 2 cents per litre, and ranged from $1.21 per litre to $1.36 per litre.

At the national level, refining and marketing costs and margins increased by 2 cents per litre from two weeks ago, and are 2 cents per litre higher than last year at this time.

Figure 3: Regular Gasoline Pump Prices in Selected Cities
Four-Week Average (January 31 to February 21, 2012)



Source: NRCan

** Regulated Markets*

Refinery Configuration – Making Refined Petroleum Products

A refiner's choice of crude oil will be influenced by the type of processing units at the refinery. Crude oil is always a mix of lighter and heavier hydrocarbons. Lighter hydrocarbons are small molecules with fewer carbon atoms. The longer the hydrocarbon chain molecule, the more carbon and the heavier the oil. Refineries fall into three broad categories. The simplest is a topping plant, which consists only of a distillation unit and perhaps a catalytic reformer to provide octane. Yields from this plant would most closely reflect the natural yields from the crude processed. Typically only light sweet crude would be processed at this type of facility unless markets for heavy fuel oil are readily and economically available. Asphalt plants are topping refineries that run heavy crude oil because they are only interested in producing asphalt. Asphalt is one of the heaviest types of crude oil.

The next level of refining is called a cracking refinery. This refinery takes the light / medium components of the crude oil input stream, breaks the molecules apart, using catalysts, high temperature and/or pressure, to make lighter gasoline and distillate components.

The last level of refining is the coking refinery. This refinery processes residual fuel, the heaviest material from the crude input stream, and thermally cracks it into lighter product in a coker or a hydrocraker. The addition of a fluid catalytic cracking unit (FCCU) or a hydro cracker significantly increases the yield of higher-valued products like gasoline and diesel oil from a barrel of crude, allowing a refinery to process cheaper, heavier crude while producing an equivalent or greater volume of high-valued products.

Source: Fuel Focus, Refinery Economics, http://www.nrcan.gc.ca/energy/sources/petroleum-products-market/1519

Wholesale Gasoline Prices

Wholesale gasoline prices increased in all centres for the **week of February 16, 2012,** compared to the previous week. Price changes ranged from an increase of less than 1 cent per litre to 7 cents per litre.

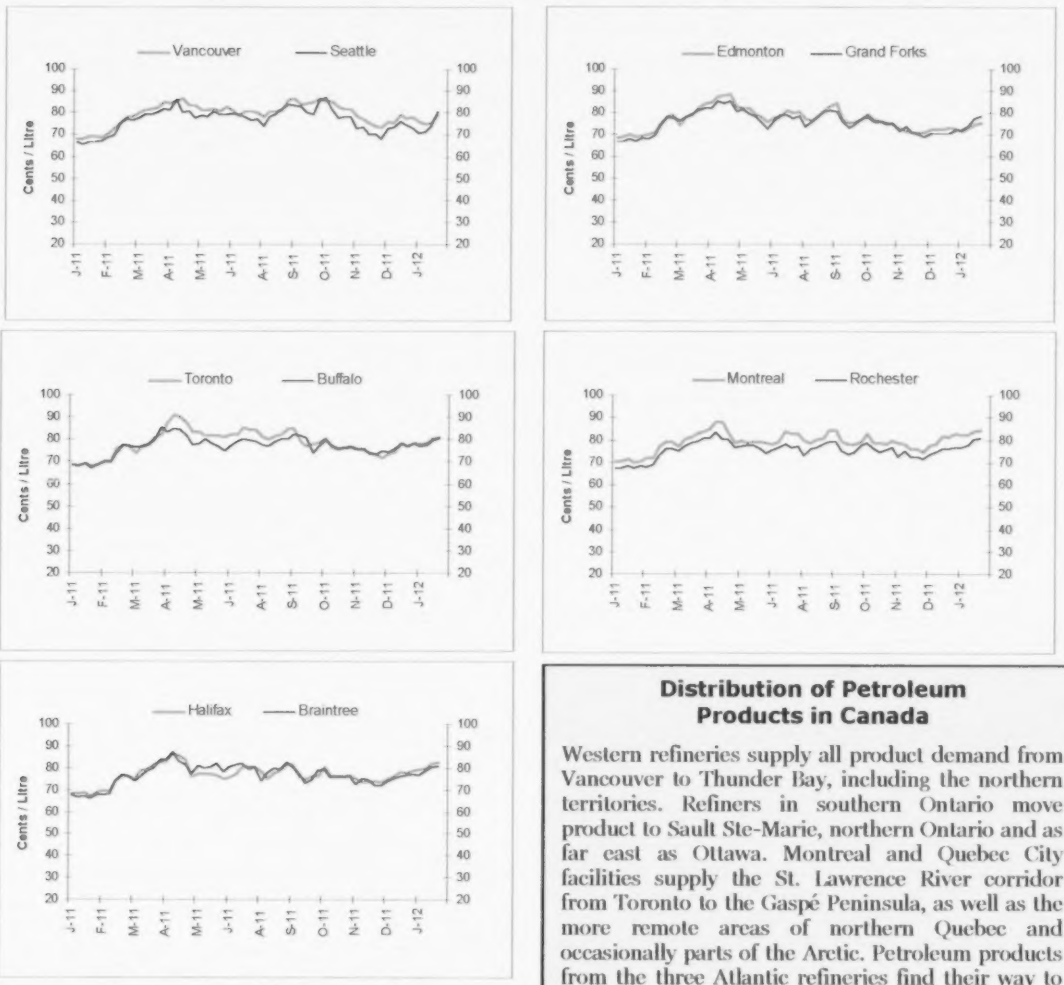
For the Eastern markets in Canada and the United States, wholesale gasoline prices rose by less than 1 cent per litre when compared to the previous week, and ended the period in the 81 to 85 cents per litre range.

Wholesale prices in Canadian and U.S. Western centres increased by less than 1 to 7 cents per litre, ending the period in the 75 to 81 cents per litre range.

In the last **four weeks**, wholesale prices in the selected Canadian and American centres have increased from 1 cent per litre to nearly 8 cents per litre.

Overall, compared to a year ago, prices in all selected centres are higher by 4 to 13 cents per litre.

Figure 4: Wholesale Gasoline Prices
Rack Terminal Prices for Selected Canadian and American Cities Ending February 16, 2012
(Can ¢/L)



Sources: NRCan, Bloomberg Oil Buyers Guide

Distribution of Petroleum Products in Canada

Western refineries supply all product demand from Vancouver to Thunder Bay, including the northern territories. Refiners in southern Ontario move product to Sault Ste-Marie, northern Ontario and as far east as Ottawa. Montreal and Quebec City facilities supply the St. Lawrence River corridor from Toronto to the Gaspé Peninsula, as well as the more remote areas of northern Quebec and occasionally parts of the Arctic. Petroleum products from the three Atlantic refineries find their way to the Arctic and Hudson Bay regions as well as the U.S. eastern seaboard.

Gasoline Refining and Marketing Margins

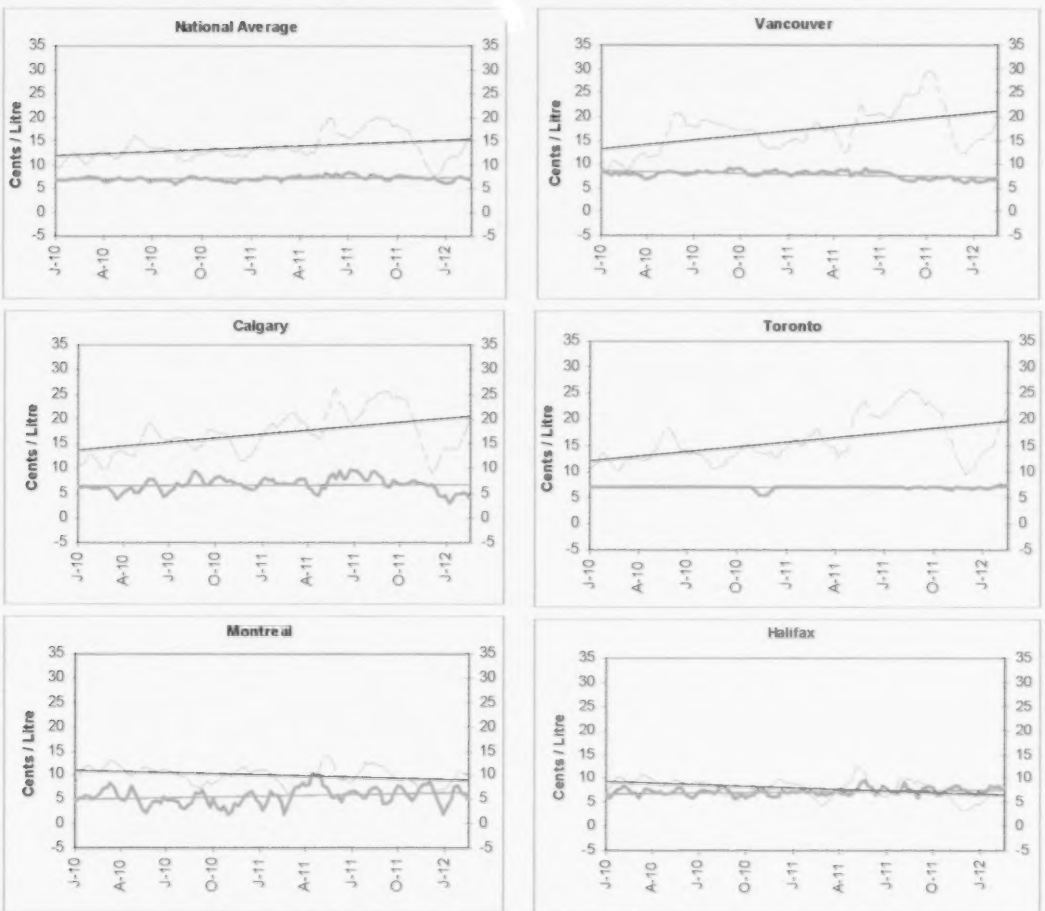
Four-week rolling averages are used for gasoline refining and marketing margins.

The refining margin is defined as the difference between the wholesale price of gasoline and the crude oil price. However, this margin is very much a function of the gasoline supply situation and local market conditions. In turn, local market conditions can have a considerable impact on short-term wholesale gasoline prices.

The marketing margin can differ significantly from city to city and region to region. These margins must cover the costs associated with transporting product through the distribution system. Some of the distribution challenges arise from the fact that petroleum products are refined in only a few geographic regions but they are consumed all across Canada.

Alberta and Saskatchewan produce more products than they consume, while Manitoba, parts of British Columbia and most of the territories are supplied primarily from the three refineries in Edmonton. As a result of the long distance the products must travel the margins are also higher in these areas.

Figure 5: Gasoline Refining and Marketing Margins
Four-Week Rolling Average Ending February 21, 2012
------- Refining Margin ——— Marketing Margin



Source: NRCan

Crude Oil Overview

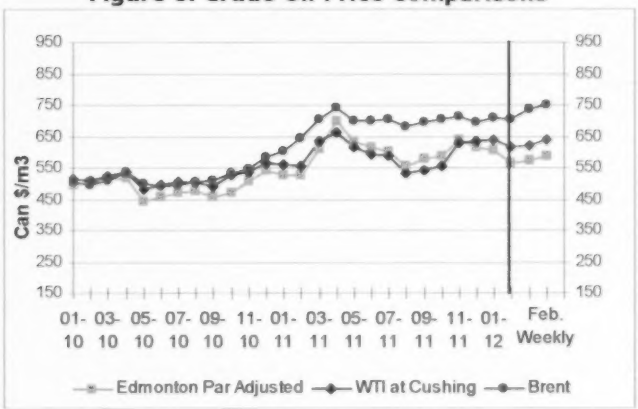
World Crude Oil Prices Rise on Political Tensions in Oil Producing Countries

For the week ending February 17, 2012, prices for the three marker crudes averaged between $589/m^3$ and $751/m^3$ (US$94 to US$120 per barrel). This is an increase of $20/m^3$ (US$3 per barrel) for WTI and Edmonton Par, respectively, compared to the previous week, while Brent increased by $14/m^3$ (US$2 per barrel)—its highest weekly average in more than three years. The price differential between Brent and WTI stood at $114/m^3$ (US$18 per barrel) for the week ending February 17, 2012.

The Middle-East impasse with respect to Iran's nuclear program and Western countries partly contributed to the upward pressure on world crude oil prices. Iran's threat to cut oil exports to six European countries, in retaliation for an E.U. ban on Iranian oil being phased in over the next four months, and continued threat to close the Strait of Hormuz, sent crude oil prices spiking.

The geographic location of the oil producing countries around the Persian Gulf, and their reliance on the Strait of Hormuz, is such that any related threat causes prices swings on the energy markets. The oil producing nations around the Persian Gulf are Bahrain, Iran, Iraq, Kuwait, Saudi-Arabia, Qatar and the United Arab Emirates producing 30% of the world's oil. Iran is the world's fourth-largest oil producer.

Figure 6: Crude Oil Price Comparisons



Changes in Crude Oil Prices

Crude Oil Types	Week Ending: 2012-02-17		Change From:			
			Previous Week		Last Year	
	$Can/$m^3$	$US/bbl	$Can/$m^3$	$US/bbl	$Can/$m^3$	$US/bbl
Edmonton Par	588.64	93.80	+20.27	+3.13	+104.17	+15.68
WTI	637.66	101.61	+20.17	+3.11	+108.47	+16.28
Brent	751.28	119.72	+14.91	+2.25	+117.67	+17.55

Source: NRCan

U.S. Short-Term Energy Outlook

The U.S. Energy Information Administration (EIA) report released on February 7, 2012, expects the price of West Texas Intermediate (WTI) crude oil to average about $100 per barrel in 2012, almost $6 per barrel higher than the average price last year.

Based on recent futures and options data, the market believes there is about a one-in-fifteen chance that the average WTI price in June 2012 will exceed $125 per barrel, and about a one-in-fifty chance that it would exceed $140 per barrel. For 2013, EIA expects WTI prices to continue to rise, reaching $106 per barrel in the fourth quarter of next year.

EIA expects regular-grade motor gasoline retail prices to average $3.55 per gallon (94 cents per litre) in 2012, compared with $3.53 cents per gallon last year, and then average $3.59 per gallon in 2013.

During the April through September peak driving season each year, prices are forecast to average about 7 cents per gallon higher than the annual average. Recent options and futures price data imply that the market believes that there is about a one-in-four chance that the U.S. average pump price of regular gasoline could exceed $4 in June of this year.

Source: EIA, http://www.eia.gov/forecasts/steo/index.cfm

How Differences Between North American and Global Crude Oil Prices Affect Canadian Gasoline Markets

The Fuel Focus Issue 19 of October 7, 2011, discussed how the choice of crude oil price used affects the calculated gasoline refining margin. This issue reviews the impact of the growing disconnect between prices for landlocked crudes, (such as West Texas Intermediate (WTI), and Canadian crudes, such as Edmonton Par) versus globally traded crude oils such as Brent. In particular, we examine the implications for Canadian gasoline markets.

Historically, the benchmark prices for Edmonton Par, WTI and Brent were closely linked, and price differences (or differentials) between these crudes were minimal. For example, in 2008, both Edmonton Par and Brent prices averaged US$98 per barrel, while WTI averaged $99.64. Market events such as refinery or pipeline outages would periodically cause price differentials, but these were usually eliminated within months.

The WTI price represents a crude type sold at Cushing, Oklahoma. Edmonton Par prices track WTI, as both crudes are of similar quality and are sold into the same geographic market area. In late 2010 and into 2011, crude oil inventories began to build at Cushing, reflecting increased oil supply (particularly from Alberta), and stagnant oil demand at Cushing. This excess oil could not easily be transported out of the Cushing area, due to pipeline bottlenecks. This situation caused softening in WTI and Edmonton Par prices.

In contrast, the conflict in Libya led to a reduction in global oil supply delivered by tanker ship from Libya. This, combined with strong global demand for oil to be delivered by ship (in particular, demand in Asia) resulted in upward price pressure on all globally traded, ship-borne crudes, such as Brent.

The combination of these factors resulted in Brent prices averaging $128 per barrel in October 2011, while WTI was $100, and Edmonton Par was $99. Stated another way, WTI traded at a $28 per barrel discount to Brent, and Edmonton Par at a $29 per barrel discount to Brent. The level of discount has varied since but remains significant, and the difference between the price of North American and global crudes appears to be more structural than differentials in the past.

Edmonton Par, WTI, and Brent are all high quality, light sweet crudes. Western Canada produces more heavy crudes than light crudes, with Western Canada Select (WCS) being a typical heavy crude blend. Heavy crudes always sell at a discount to light crudes, as they are more difficult to refine into petroleum products. Typically WCS sells at a $10 to $20 per barrel discount to WTI. This WCS/WTI discount varies, depending on refinery outages and how much refinery capacity is available to process heavy crudes at any particular time (not all refineries can process heavy crudes).

WCS was trading at a US$38 discount relative to WTI on February 9, 2012. While $10-$20 of this discount could be attributed to the difference in oil grades, the remaining $18 - $28 reflects pipeline bottlenecks from Western Canada. Given growing Canadian heavy crude production, Canadian producers do not have sufficient pipeline capacity connecting to heavy crude-capable refinery markets. This is driving bigger discounts between WCS and WTI.

The above situations have significant implications for Canadian oil producers, refiners and consumers. Note that Fuel Focus reports do not track individual Canadian refinery crude purchases. Different refineries purchase different proportions of light and heavy crude feedstocks, and pay varying prices for crudes of different qualities. However, in general, all Canadian refineries from Montreal eastwards purchase crude feedstock at prices influenced by Brent prices, while refineries west of Montreal are mainly paying for oil feedstock at prices more closely linked to Edmonton Par prices.

For the week ending February 3, 2012, Edmonton Par crude prices averaged Cdn$89 per barrel (Cdn$0.57 per litre), while Brent prices averaged Cdn$112 per barrel (Cdn$0.70 per litre). This difference in crude feedstock costs is a major reason why gasoline prices are lower in western Canada. For example, in Edmonton for the week ending February 2, 2012, gasoline averaged $1.06 per litre, while prices in Charlottetown were $1.22 per litre (Note that provincial gasoline taxes in Charlottetown are also $0.07 per litre higher than in Edmonton). As shown on Figure 3 of the Fuel Focus report, retail pump prices tend to be significantly higher, on average, for eastern centres (Toronto to St. John's) compared to western centres (Vancouver to Winnipeg).